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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/480,837	01/10/2000	STEPHAN GEHRING	INT-99-009	4824
44279	7590	01/07/2005	EXAMINER	
PULSE-LINK, INC. 1969 KELLOGG AVENUE CARLSBAD, CA 92008			SHAH, CHIRAG G	
			ART UNIT	PAPER NUMBER
			2664	

DATE MAILED: 01/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/480,837	Applicant(s) GEHRING ET AL.	
	Examiner Chirag G Shah	Art Unit 2664	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 9/10/04.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 5) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 6) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 9, 14, and 20 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification directed to using a ultra wide band transport system as disclosed on page 12 of the co-pending United States Patent Application Serial No. 09/393,121, filed September 10, 1999, does not describe in a way as to reasonably convey the limitation of the communication comprising "a multiplicity of ultra wide band signals" and/or the combinational limitation of "the communication using Time Division Multiple Access frame comprising a multiplicity of ultra wide band signals" to one skilled in the relevant art. How does using an ultra wide band transport system support the communication using a TDMA comprising a multiplicity of ultra wide band signals?

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Fullerton (U.S. Patent No. 5,687,169) in view of Hodzic (U.S. Patent No. 6,097,707), and further in view of Hulyalkar (U.S. Patent No. 6,347,084).

Referring to claims 1, 9, and 14, Fullerton discloses in figure 9 and respective portions of the specification of an ultrawide-band communication system. Fullerton further discloses in column 4, lines 1-55, column 9, lines 45 to column 10, lines 20 and in claim 1 and 4 of full duplex transmission (in TDMA) between at least two impulse radio transceivers (at least two impulse radio transceivers implies a means for employing a multiple full duplex master transceivers and plurality of slave transceivers). Fullerton further discloses in claim 2-4 and respective portions of the specification of generation and transmitting the communication comprising a multiplicity of ultra wide band signals. Fullerton fails to explicitly disclose of utilizing a MAC layer protocol for transmission and reception of network protocol comprising a TDMA frame definition having a start-of-frame section, command section, data slot section, a synchronization section and a timeslot section. Hodzic discloses in section 2 of media access control protocol for an adaptive TDMA process or cycle. The cycle of typical scheduling for MAC is illustrated in figure 2 and respective portions of the specification. Furthermore, as disclosed in column 8, the data field of the HDLC frame is used to carry the relevant information for the respective MAC layer frame. The Data frame as described in column 8 and 9 include variable length data packet field, variable size slots, control (command) section, ack.

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slot, start of frame slot (bit 1 used for reservation or request) and synchronization slot. Hodzic also teaches in figures 1 and 4 of a single Central Control Unit (CCU-master device 12) and plurality of remote or terminal units (TUS-slaves 14). Hodzic further teaches in column 5 of a method for scheduling the assignment of variable length data slots in a network system by disclosing that the number of down-link time slots is managed by the central unit according to of the number of remote units for whom the central unit has information to be transmitted, and the size of a down-link slot for a remote unit is similarly managed according to the payload scheduled by the central unit for the remote unit. Hodzic further supports in the above-disclosed sections of determining a schedule time to communicate the assignment and allocation and reallocation of variable length data slots to each of terminal (slave devices).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Fullerton to include the teaching of Hodzin in order to provide a reservation scheme for data traffic and a random access technique for control and signaling traffic. Fullerton in view

Hodzic fail to disclose of a TDMA frame that include a timestamp slot. Hulyalkar teaches a method of timestamp synchronization that includes a control node (master device) and a plurality of other nodes (slave devices) that communication with one another mediated by a MAC subsystem that uses a reservation-based TDMA protocol. Hulyalkar discloses in claims 1-3 and respective portion of the specification include a control node sending a preset command to slave nodes and it presets their respective timestamp to the prescribed timestamp value.

Thus, having a timeslot within a TDMA frame. Therefore, it would have been obvious to incorporate the teachings of Hulyalkar into Fullerton in view of Hodzic's invention in order to reduce the delay and increase transmission efficiency of the communications network.

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Referring to claims 2-4 and 13, Fullerton discloses an ultra wide band network. Fullerton fails disclose of utilizing a MAC layer protocol configured to implement dynamic requisition, allocation and reallocation of variable length data slots. Hodzic discloses in column 3 lines 40 to column 4 lines 27, and 5 lines 59-67 that the MAC layer protocol as recited is configured to implement dynamic requisition, allocation and reallocation of variable length data slots with as claims. Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Fullerton to include the teaching of Hodzin in order to provide a reservation scheme that efficiently manages the allocation of available capacity.

Referring to claims 5, 12, 15 and 16, Fullerton discloses an ultra wide band network. Fullerton fails to disclose master device and slave device are further configured to coordinate a scheduled switch from a first set of data slot parameters to second set of data slot parameters. Hodzic discloses in column 2 lines 59 column 3 lines 55 and claim 1 and respective portions of the specification that the MAC layer as recited wherein master device and slave device are further configured to coordinate a scheduled switch from a first set of data slot parameter to second set of data slot parameters as claims. Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Fullerton to include the teaching of Hodzin in order to provide a reservation scheme for data traffic and a random access technique for control and signaling traffic.

Referring to claim 8, Fullerton discloses an ultra wide band network. Fullerton fails to disclose that variable length data slots of frame have a granularity of one bit. Hodzic discloses in columns 8 lines 42 to column 9 lines 24 that the MAC layer protocol as recited, wherein variable length data slots of frame have a granularity of one bit as claim. Therefore, it would have been

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obvious to one of ordinary skill in the art to modify the teachings of Fullerton to include the teaching of Hodzin in order to provide a reservation scheme for data traffic and a random access technique for control and signaling traffic.

Referring to claims 6, 7, and 10-12, Fullerton in view of Hodzic discloses of an ultra wide band network that the Medium Access Control layer employs an adaptive TDMA process or cycle. Fullerton in view of Hodzic however fails to teach that that MAC layer includes a timestamp slot further comprising a bit-field, which is incremented by a master timestamp counter and that each of the slave devices is configured to maintain a local copy of master timestamp counter. Fullerton in view Hodzic also fails to teach that each slave device is structured to coordinate a schedule switch from a first set of data slot parameters to a second set of data slot parameters. Hulyalkar discloses in claims 7 and 11 and respective portions of the specification of comparing timestamp counter value in each nodes (slave), thus each of the slave devices is configured to maintain a copy of the master counter as further depicted in claim 12. Hulyalkar also disclose a timestamp register and counter that includes a bit-field for incrementing. Hulyalkar further discloses in the above disclosed sections that includes comparator that compares the timestamp values stored and coordinates switch from a first set of data slot to a second set of data slot at different times. Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Fullerton in view of Hodzic to include the teachings of Hulyalkar in order to precisely determine timing for the entire system and execute transmission with minimal delay or packet loss.

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5. Claim 17-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Fullerton and Hodzic (U.S. Patent No. 6,097,707) in view of Hulyalkar (U.S. Patent No. 6,347,084) as applied to claim 1-16 above, and further in view of Bisdikian (U.S. Patent No. 6,181,687).

Referring to claims 17-19, Fullerton and Hodzic in view of Hulyalkar discloses of full duplex transmission in the UWB impulse wireless radio system comprising a MAC control layer protocol for transmission and reception. Fullerton and Hodzic in view of Hulyalkar fails to disclose the method, wherein the network is selected from a group consisting of: a wire media network, a wireless media network and a network comprising wire and wireless media. Bisdikian disclose of a multi-access computer communication system and further discloses in column 7, lines 30-40 and in claims 41 and 42 that network may be selected from a group of wireline media, wireless media or the combination of two. Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Fullerton and Hodzic in view of Hulyalkar to include the teachings of Hodzic in order to provide sufficient flexibility to the system enabling the MAC protocol to dynamically adjust to changes in traffic demands to achieve optimal performance.

### ***Response to Arguments***

6. Applicant's arguments filed 9/10/04 have been fully considered but they are not persuasive.

Referring to claims, 1, 9, 14, and 20, Applicant argues that Fullerton reference fails to disclose a multiplicity of ultra wide band pulses are sent using a TDMA frame format. However, based on further evaluation of the specification for further details of how a multiplicity of ultra



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wide band pulses are sent using a TDMA frame format, Examiner respectfully deems the claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification directed to using a ultra wide band transport system as disclosed on page 12 of the co-pending United States Patent Application Serial No. 09/393,121, filed September 10, 1999, does not describe in a way as to reasonably convey the limitation of the communication comprising "a multiplicity of ultra wide band signals" and/or the limitation of "the communication using Time Division Multiple Access frame comprising a multiplicity of ultra wide band signals" to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. How does using an ultra wide band transport system support the communication using a TDMA comprising a multiplicity of ultra wide band signals? Therefore, since there is no support in the current application (09/480837) specification, co-pending application's (09/393121) specification and continuation-in-part application (09/393122) specification of a TDMA frame comprising a multiplicity of ultra wide band signals, the claims 1-20 stand rejected.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
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**Or faxed to:**

(703)305-3988, (for formal communications intended for entry)

**Or:**

Art Unit: 2664

(703)305-3988 (for informal or draft communications, please label "Proposed" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag G Shah whose telephone number is 571-272-3144. The examiner can normally be reached on M-F 6:45 to 4:15, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cgs  
November 18, 2004

  
**Ajit Patel**  
**Primary Examiner**